

REMARKS

Claims 1-32 are pending in the present patent application. By the present Preliminary Amendment, submitted contemporaneously with their Request for Continued Examination, Applicants have amended claims 1, 2, 5, 7, 8, 18, 22-24, and 28-30.

In the Final Office Action mailed May 12, 2006, preceding the Advisory Action mailed July 21, 2006, claims 1-32 were finally rejected. Applicants believe that claims 1-32 are allowable in their present respective forms, notwithstanding the reasons for the previous final rejection of claims 1-32.

For example, claims 1, 5-7, 11-17, and 30-32 were previously rejected under 35 U.S.C. §102(b) as being anticipated by Kao, et al., U.S. Patent Application Publication No. 2002/0018086 A1 (hereinafter, Kao).

Amended claim 1 recites producing a plurality of fire signals, each fire signal of said plurality of fire signals being asserted at a different timing than other of said plurality of fire signals and wherein each fire signal of the plurality of fire signals is used to separately address a respective corresponding group of nozzles. However, the purported Kao fire signals are applicable to all nozzles, and are not unique to a specific group of nozzles.

Accordingly, Kao does not disclose, teach, or suggest wherein each fire signal of the plurality of fire signals is used to separately address a respective corresponding group of nozzles, as recited in amended claim 1.

Claim 1 is thus believed allowable in its present form.

Amended claim 5 recites combining said plurality of fire signals to form a composite fire signal that maintains said different timing, wherein each of said plurality of fire signals

includes a prefire signal and mainfire signal. The Examiner asserted that the Kao first and second heating pulses are actuator fire signals. However, the Kao first and second heating pulses do not each include both a prefire signal and a mainfire signal.

The Examiner asserted that the Kao R1 signal is a composite signal obtained by combining both the first heating pulse and the second heating pulse. However, the Kao first and second heating pulses logically cannot be both prefire and mainfire signals, respectively, and also be a composite fire signal, formed of a plurality of fire signals, wherein each of said plurality of fire signals includes a prefire signal and mainfire signal, as asserted by the Examiner.

Rather, if the Kao first and second heating pulses are prefire and mainfire signals, respectively, they would form a single fire signal having a prefire and mainfire signal, not a composite fire signal, formed of a plurality of fire signals, wherein each of the plurality of fire signals includes a prefire signal and mainfire signal.

On the other hand, if the Kao first and second heating pulses are a plurality of fire signals that assertedly form a composite fire signal, each of the first and second heating pulses do not include both a prefire and a mainfire pulse. Hence, each of the plurality of fire signals does not include a prefire signal and mainfire signal, whereas claim 5 recites that each of the plurality of fire signals includes a prefire signal and mainfire signal.

Accordingly, Kao does not disclose, teach, or suggest combining a plurality of fire signals to form a composite fire signal that maintains the different timing, wherein each of the plurality of fire signals includes a prefire signal and mainfire signal, as recited in claim 5.

Claim 5 is thus believed allowable in its present form.

Claim 6 is believed allowable at least due to its dependence on allowable base claim 1.

Amended claim 7 recites, in part, wherein each fire signal of said plurality of fire signals is used to separately address a respective corresponding group of nozzles, and is believed allowable for substantially the same reasons as set forth above with respect to claim 1.

Claims 11-17 are believed allowable at least due to their dependence on allowable base claim 7.

Amended claim 30 recites, in part, wherein each fire signal of the plurality of fire signals is used to separately address a respective corresponding group of nozzles on a printhead, and is believed allowable for substantially the same reasons as set forth above with respect to claim 1.

Claims 31 and 32 are believed allowable at least due to their dependence on allowable base claim 30.

Claims 18, 19, 24, and 25 were previously rejected under 35 U.S.C. §103(a) as being unpatentable over Inui, et al., U.S. Patent No. 6,344,867 B2 (hereinafter, Inui) in view of Sueoka, et al., U.S. Patent No. 6,024,439 (hereinafter, Sueoka).

Amended claim 18 recites a decoder circuit in communication with said actuator firing logic circuit, said decoder circuit including at least one input for receiving at least one composite fire signal, wherein said at least one composite fire signal represents a plurality of fire signals, and wherein each fire signal of the plurality of fire signals is used to separately address a respective corresponding group of the plurality of nozzles.

Inui does not disclose, teach, or suggest a composite fire signal that represents a plurality of fire signals, but rather, discloses that three-value gradation data is supplied to decoder 57 (col. 11, lines 35-37).

In addition, Inui discloses that the output of decoder 57 is supplied to first and second shift registers that are used to provide energy to all of heating elements R1-R1024 (col. 11, lines 35-47, Fig. 7), which does not disclose, teach, or suggest wherein each fire signal of the plurality of fire signals is used to separately address a respective corresponding group of the plurality of nozzles.

Sueoka simply does not disclose, teach, or suggest any details pertaining to a composite fire signal, much less wherein the at least one composite fire signal represents a plurality of fire signals, and wherein each fire signal of the plurality of fire signals is used to separately address a respective corresponding group of the plurality of nozzles.

Accordingly, claim 18 is believed allowable in its present form.

Claim 19 is believed allowable at least due to its dependence on allowable base claim 18.

Amended claim 24 recites wherein said at least one composite fire signal represents a plurality of fire signals, and wherein each fire signal of the plurality of fire signals is used to separately address a respective corresponding group of the plurality of nozzles, and is believed allowable for substantially the same reasons as set forth above with respect to claim 18.

Claim 25 is believed allowable at least due to its dependence on allowable base claim 24.

Claims 20, 21, 26, and 27 were previously rejected under 35 U.S.C. §103(a) as being unpatentable over Inui, in view of Sueoka, and in further view of Umezawa.

Claims 20, 21, and 26, 27 are believed allowable at least due to their dependence on their allowable respective base claims 18 and 24, since Umezawa does not make up for the deficiency of the combination of Inui and Sueoka as applied to claims 18 and 24.

Claims 22, 23, 28,29 were previously rejected under 35 U.S.C. §103(a) as being unpatentable over Inui in view of Sueoka, and in further view of Kao

Claims 22, 23 and 28, 29 are believed allowable at least due to their dependence on their allowable respective base claims 18 and 24, since Kao does not make up for the deficiency of the combination of Inui and Sueoka as applied to claims 18 and 24.

Claims 2-4, 8, and 9 were previously rejected under 35 U.S.C. §103(a) as being unpatentable over Kao in view of Inui.

Claim 2 recites, in part, decoding said composite fire signal thereby producing a plurality of decoded fire signals.

There would be no motivation to modify Kao with Inui to achieve Applicants' invention of claim 2, since the purported Kao composite fire signal is already applied to the Kao heating elements, and hence, the addition of a decoder would be at best superfluous. In addition, such a modification would alter the principle of operation of the Kao apparatus, and hence, would not be an obvious modification.

Claims 3 and 4 are allowable due at least to their dependence on allowable base claim 2.

Claim 8 recites, in part, a decoder circuit connected to said actuator firing logic circuit, said decoder circuit including at least one input for receiving said composite fire signal, and is believed allowable for substantially the same reasons as set forth above with respect to claim 2.

Claim 9 is allowable due at least to its dependence on allowable base claim 8.

Claim 10 was rejected under 35 U.S.C. §103(a) as being unpatentable over Kao in view of Inui, and in further view of Arquilevich, U.S. Patent No. 6,578,943 B2 (hereinafter, Arquilevich).

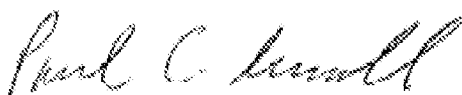
Claim 10 is believed allowable due to its dependence on otherwise allowable base claim 8, since Arquilevich does not disclose, teach, or suggest the subject matter of claim 8 or otherwise make up for the deficiency of the combination of Kao and Inui as applied to claim 8.

Accordingly, Applicants believe that claims 1-32 are allowable in their present respective forms, and thus respectfully request that the Examiner issue a Notice of Allowance in due course.

In the event Applicants have overlooked the need for an extension of time, an additional extension of time, payment of fee, or additional payment of fee, Applicants hereby conditionally petition therefor and authorizes that any charges be made to Deposit Account No. 20-0095, TAYLOR & AUST, P.C.

Should any question concerning any of the foregoing arise, the Examiner is invited to telephone the undersigned at (317) 894-0801.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Paul C. Gosnell". The signature is fluid and cursive, with a large initial "P" and a stylized "G".

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